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Filing Date: November 14, 2000

Title: METHOD AND APPARATUS FOR USING ATRIAL DISCRIMINATION ALGORITHMS TO DETERMINE OPTIMAL PACING

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## **REMARKS**

Applicant has reviewed the Office Action dated September 24, 2003. Claims 66-77 have been added. Claims 1, 3-31 and 33-75 are pending in this application. Of these pending claims, claims 22-29, 53-59 and 63-65 have been withdrawn from further consideration by the Examiner, and claims 1, 3-21, 30, 31, 33-52, 62 and 66-77 are being prosecuted. Withdrawn claim 63 has been amended to correct a typographical error.

### Election/Restriction

In a Response to Restriction Requirement dated June 16, 2003, Applicant respectfully asserted that at least claim 1 is a linking claim, in accordance with MPEP §809, that links the claims in the groups (Group I, II, III, IV, V and VI) identified by the Examiner. The Examiner disagreed with the Applicant's position that claim 1 is a linking claim.

A generic claim does not include a material element additional to those recited in species claims, and comprehends within its confines the organization covered in each of the species (MPEP §806.04(d)). Applicant respectfully asserts that the Examiner argued that Groups III-VI includes elements additional to claim 1 rather than arguing that claim 1 includes a material element additional to those recited in Groups III-VI. Reconsideration is respectfully requested.

Furthermore, Applicant respectfully asserts that new independent claims 66 and 71 are generic to Groups I-VI as identified by the Examiner. Applicant asserts that claim 71 is a claim to "means" for practicing the process recited in claim 66, and thus links proper apparatus and process claims (MPEP §809.03). Claim 67 depends on independent claim 66, and generally corresponds to claim 1, which has been classified as **Group I** by the Examiner. Claim 68 depends on claim 67, and generally corresponds to claim 14, which has been classified as **Group II** by the Examiner. Claim 69 depends on claim 67, and generally corresponds to claim 64, which has been classified as **Group VI** by the Examiner. Claim 70 depends on independent claim 66, and generally corresponds to claim 24, which has been classified as **Group III** by the Examiner. Claim 74 indirectly depends on independent claim 71, and generally corresponds to claim 63, which has been classified as **Group V** by the Examiner. Claim 75 indirectly depends on independent claim 71, and generally corresponds to claim 53, which has been classified as

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Group IV by the Examiner. Upon the allowance of a generic claim, Applicant respectfully requests consideration of all withdrawn claims.

## §102 Rejection of the Claims

In the Office Action, claims 1, 3, 5 - 14, 16 - 21, 30, 31, 33, 35 - 45, 47 - 52 and 62 were rejected under 35 USC § 102(b) as being anticipated by Gillberg et al. (U.S. Patent No. 5,755,736). Applicant respectfully traverses for at least the following reasons.

In the present application, discrimination criteria is used to distinguish at least two different types of supraventricular tachycardia having regular rapid supraventricular heart rates, and an indicator or therapy is provided for each distinguished supraventricular tachycardia. An example of a supraventricular tachycardia having regular rapid supraventricular heart rates is atrial flutter, which refers to a rapid regular atrial contraction. Thus, for example, the present application discloses subject matter that is capable of providing different therapies for faster and slower atrial flutters.

Applicant is unable to find, among other things, in the cited portions of Gillberg et al. a showing or fair suggestion of distinguishing at least two different types of supraventricular tachycardia having regular rapid supraventricular heart rates from each other, and providing an indicator or therapy for each of the distinguished supraventricular tachycardia having regular rapid supraventricular heart rates. The Examiner referenced figure 11 - 632, 634 and a number of passages in response to Applicant's previous arguments. Applicant notes that 632 refers to atrial fibrillation (AF) therapy and 634 refers to atrial tachycardia (AT) therapy. Atrial fibrillation generally refers to rapid irregular contractions of the atria, and tachycardia generally refers to a rapid heart rate. The Gillberg et al. reference does not appear to provide different pacing therapies in response to the individual SVT rejection rules 606, 608, 610, 612, 614. Rather, and an AF therapy 632 is provided in response to a sustained AF 622, and an AT therapy 634 is provided in response to a sustained AT 624 (Figure 11). Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference a showing or a fair suggestion that different therapies are provided for different supraventricular tachycardias having regular rapid supraventricular heart rates.

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With respect to independent claim 1, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method for providing pacing therapy to a heart that includes controlling pacing of the heart in a first manner for an identified first one of the at least two different types of supraventricular tachycardia and in a second manner for an identified second one of the at least two different types of supraventricular tachycardia, as recited in the claim. The supraventricular tachycardia recited in the claim have regular rapid supraventricular heart rates. Claims 3 and 5-13 depend, either directly or indirectly, on independent claim 1, and are believed to be patentable for at least the reasons provided with respect to independent claim 1.

With respect to independent claim 14, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a method for providing pacing therapy to a heart where pacing of the heart is controlled to provide atrial antitachycardia pacing to the heart if a slower rate supraventricular tachycardia is identified as occurring and providing a second type of pacing control if a fast atrial flutter is identified as occurring, as recited in the claim. The recited supraventricular tachycardia have regular rapid supraventricular heart rates. Claims 16-21 depend, either directly or indirectly, on independent claim 14, and are believed to be patentable for at least the reasons provided with respect to independent claim 14.

With respect to independent claim 30, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a cardiac pacing device that includes a processor for distinguishing at least two different types of regular rapid heart rates, and for controlling the pacer to provide a first pacing therapy to the heart for a first type of regular supraventricular tachycardia and a second pacing therapy to the heart for a second type of regular supraventricular tachycardia, as recited in the claim. Claims 31, 33 and 35-43 depend, either directly or indirectly, on independent claim 30, and are believed to be patentable for at least the reasons provided with respect to independent claim 30.

With respect to independent claim 44, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a processor for distinguishing between regular rapid supraventricular tachycardia heart rates including distinguishing between fast atrial flutter and a slower rate supraventricular tachycardia and for controlling the pacer to provide atrial antitachycardia pacing to the heart if a slower rate supraventricular tachycardia is identified as

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occurring and to provide a second type of pacing if a fast atrial flutter is identified as occurring, as recited in the claim. Claims 45 and 47-52 depend, either directly or indirectly, on claim 44 are believed to be patentable at least for the reasons provided with respect to claim 44.

With respect to independent claim 62, Applicant is unable to find, among other things, in the cited portions of the Gillberg et al. reference, a processor for distinguishing between regular rapid supraventricular tachycardia heart rates including distinguishing between fast atrial flutter and a slower rate supraventricular tachycardia to identify whether a fast atrial flutter or a slower rate supraventricular tachycardia is occurring, and for controlling the pacer to provide atrial antitachycardia pacing to the heart for an identified slower rate supraventricular tachycardia and to provide a second type of pacing for an identified fast atrial flutter, as recited in the claim.

Applicant respectfully requests withdrawal of the §102 rejection, and reconsideration and allowance of the claims.

# §103 Rejection of the Claims

In the Office Action, claims 4, 15, 34 and 46 were rejected under 35 USC § 103(a) as being unpatentable over Gillberg et al. (U.S. Patent No. 5,755,736) in view of Ayers et al. (U.S. Patent No. 5,549,641). Applicant respectfully traverses for at least the following reasons.

Applicant is unable to find, among other things, in the cited portions of Ayers et al., either alone or in combination with the cited portions of Gillberg et al., a showing or fair suggestion of distinguishing at least two different types of supraventricular tachycardia having regular rapid supraventricular heart rates from each other, and providing an indicator or therapy for each of the distinguished supraventricular tachycardia having regular rapid supraventricular heart rates.

Claim 4 depends on independent claim 1, and is believed to be patentable for at least the reasons provided with respect to independent claim 1. Claim 15 depends on independent claim 14, and is believed to be patentable for at least the reasons provided with respect to independent claim 14. Claim 34 indirectly depends on independent claim 30, and is believed to be patentable for at least the reasons provided with respect to independent claim 30. Claim 46 depends on independent claim 44, and is believed to be patentable for at least the reasons provided with respect to independent claim 44.

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Applicant respectfully requests withdrawal of the §103 rejection, and reconsideration and allowance of the claims.

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### Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6960) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743

Respectfully submitted,

VICTOR T. CHEN ET AL.

By their Representatives,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-

1450, on this 5 day of February, 2004.

Name

Signature